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Abstracts

[Sources of patent abstracts are cited if they are not from printed copies or official abridgments.]

ORGANIC FIBERS I

FIBER TO FABRIC. M. B. Potter. Associated Trade Journals Co., Sidney, N. S. W.; 1946; price 16s 9d.

Reviewed in *Textile J. Australia 21,* 435 (Sept. 1946). TTD:12-46.

Vegetable fibers I 1

JUTE RETTING. Application of Hiparol and bacterial enzyme preparations to modern jute spinning practice. C. M. Watson, Shree Hanuman Jute Mills, & H. K. Baruah, Bose Research Inst. *Textile Mfr. 72,* 434-5, 437 (Aug. 1946).

Retting with Hiparol and bacterial enzymes is carried out by utilizing the condensate from the beaming cylinders in processing tanks. Cloth samples from jute so treated show greater weights/sq. yd. and higher tensile strength than the standard mill quality samples, the weft yarns being more compactly spun because of better softening of the treated jute cuttings.

TTD:12-46.

OILING OF JUTE. I—Comparative fiber-lubricating properties of oil mixtures as studied by fiber length analysis of card slivers. W. G. Macmillan & M. K. Sen. *J. Textile Inst. 37,* T141-50 (June, 1946).

From some 20,000 measurements made to find a method of fiber length analysis the draw method of sampling was found superior to the pinch or tuft methods. On applying this method to various card slivers it was found that the addition (preferably 25 vol. %) of certain vegetable oils, particularly castor and ground nut, increases the lubricating power of mineral oil.

TTD:12-46.

FLAX RETTING. Theodore Earle. USP 2 407 227, Sept. 10, 1946; Can. P. 437 176, Oct. 1, 1946.

An improved retting process, particularly for flax but also for ramie, hemp, and other bast fibers, consists essentially in acidifying the water of the retting solution to a pH approximately 6.6, adding an enzyme-active solution of a previous ret such as to give a pH about 6.3 and heating to about 90°F and allowing the retting to proceed for about 24-36 hours.

TTD:12-46.

COTTON. Working Party Reports, Board of Trade. H. M. Stationery Office, London, 1946; 278 pp.; price 3s 6d.

Cited in *Nature 158,* 888 (Dec. 14, 1946). TTD:12-46.

FIBER AND SPINNING TEST RESULTS FOR SOME UPLAND COTTONS GROWN IN SELECTED STANDARDIZED-VARIETY AREAS, CROP OF 1946. Pamphlet of USDA Production and Marketing Administration, Washington, D. C.; 1946; 13 pp.

TTD:12-46.

GENETICS OF "CORKY". (1). THE NEW WORLD ALLELES AND THEIR POSSIBLE ROLE AS AN INTERSPECIFIC ISOLATING MECHANISM. S. G. Stephens. CRINKLED DWARF ALLELOMORPH SERIES IN THE NEW WORLD COTTONS. J. B. Hutchinson. EVIDENCE ON CHROMOSOME HOMOLOGY AND GENE HOMOLOGY IN THE AMPHIDIPLOID NEW WORLD COTTONS. R. A. Silow. Memoirs of the Cotton Research Station, Series A, Genetics No. 26. Empire Cotton Growing Corp.; London, 1946; 54 pp.; price 2s 6d.

Cited in *Nature 158,* 921 (Dec. 21, 1946). TTD:12-46.

PERIODIC PARTIAL FAILURES OF AMERICAN COTTONS IN THE PUNJAB, THEIR CAUSES AND REMEDIES. R. H. Dastur. Scientific Monograph 2, Indian Central Cotton Committee, Bombay, 1946; 144 pp.; price 5.80 rupees.

Cited in *Nature 158,* 888 (Dec. 14, 1946). TTD:12-46.

Animal fibers I 2

TEASEL IN WOOLEN INDUSTRY. Fred Noechel. *Dyestuffs 39,* 74-8 (Summer-Autumn 1946).

A historical background note on the teasel plant emphasizes that machinery and equipment of today have not yet been able to equal the teasel for raising the nap and softening the texture of a woolen fabric.

TTD:12-46.

SILK FIBROIN. Note on isoelectric point of silk fibroin as determined by cataphoresis. C. J. Cadwallader & F. O. Howitt, Brit. Cotton Industry Research Assn. *Trans. Faraday Soc. 42,* 642-5 (Sept.-Oct. 1946).

The cataphoretic mobilities of silk fibroin, made water-

soluble, the protein being considered free from impurities and protein degradation products, were measured in the presence of red gold sol by means of the moving boundary method (i. e. by observing the mass motion of the protein sol and not by measuring the velocity of migration of individual particles); and an isoelectric point of pH 3.2 was obtained.

TTD:12-46.

Artificial fibers — I 3

FIBERS. Development trends in artificial fibers. J. Weibel. *Textil-Rundschau 1,* 158 (Nov. 1946).

Since no one fiber can serve all purposes, industry must always have many fibers available. For viscose a major development trend is toward higher wet strength. For acetate a major trend is toward dry spinning, and the competition with nylon for strength and other properties is particularly keen. Nations with abundant cheap cellulose tend to produce cellulosic rayons, while nations with cheap power and a well developed chemical industry tend toward the synthetics. TTD:12-46.

PATENTS. What is invention? Paul Wengraf. *Textil-Rundschau 1,* 4-10 (July, 1946).

The concept of invention is extremely difficult to define, and when defined in accord with the patent laws of one nation the definition is not necessarily correct in other nations. For example, under the ruling that imparting ductility to tungsten is not invention, it seems probable that imparting a similar property to cellulose in the manufacture of rayon is also not invention. That being the case, the manufacture of protein fibers from casein or like sources is not invention. There is some question as to whether pigment delustering of rayon would be regarded as an invention in view of the much older art of incorporating metal compounds in rayon filaments in the manufacture of gas mantles. Even when the concepts of invention and patentability are separated it is still difficult to define invention, partly because the boundary between practical utility and artistic merit is not sharply defined. TTD:12-46.

WOOL SUBSTITUTE. Lonza Elektrizitätswerke und chemische Fabriken A.-G. Swiss P. 244 572, May 9, 1942.

A process for making yarn of wool-like quality, and yarn made by this process. TTD:12-46.

ALGINATE RAYON. John B. Speakman & Norman H. Chamberlain (to Cefoil, Ltd.). USP 2 409 319, Oct. 15, 1946.

An alkali-resistant fabric is produced from alkali-soluble alginate rayon by treating the material with basic Cr or Be salts, or with formaldehyde or with a combination of formaldehyde and either or both of these salts. In the formaldehyde treatment the Ca must first be removed by cold, dilute acid, such as HCl (usually 0.5*N*); with the Cr or Be salt treatment removal of Ca is optional. TTD:12-46.

STAPLE FIBER. Noel J. Folsom & Silas M. Martin (to Celanese Corp. of Am.). USP 2 394 603, Feb. 12, 1946.

Staple fiber lengths are produced from continuous filaments by an improved cutting device.

TTD:12-46.

Cellulosic rayons — I 3 a

ASBESTOS-RAYON BLENDS. Rayon in spinning of asbestos. Howard E. Shearer, Am. Viscose Corp. *Rayon Textile Monthly 27,* 599-600 (Nov. 1946).

The necessity of using low-grade, short fiber asbestos has led to the use of staple rayon yarns (generally fine size and short length) as a carrier in the manufacture of asbestos yarns for the electrical trade.

HAM TTD:12-46.

CAUSTIC SODA as used in rayon industry. Paul W. Frisk. *Rayon Textile Monthly 27,* 596-8 (Nov. 1946).

The characteristics of the special type of caustic soda needed for the manufacture of rayon are generally described and the handling of the soda in the rayon plant discussed.

HAM TTD:12-46.

DELUSTERED RAYON. Abrasive effect of delustered rayons on steel needles and card wire. R. Lasse, Wollfärberei Bürglen, Dr. Jakob Cunz A.-G. *Textil-Rundschau 1,* 10-14 (July, 1946).

Rayons delustered with titanium dioxide can cause severe wear of knitting machine needles and card fillet wires. Examples of delustered rayons and some of their effects on needles and wires are illustrated by photomicrographs. Rayon manufacturers consider abrasive effect, along with delustering effect, as a factor in selecting the best particle size for the delustering pigment. Phase contrast photography is useful in these studies. Dark field photography is also an aid in bringing out fine pigment particles in a fiber.

TTD:12-46.

RAYON PULP. Wood as a raw material for making paper and artificial fibers. Hans Bucher, Cellulosefabrik Attisholz A.-G. vormals Dr. B. Sieber. *Textil-Rundschau 1,* 16-20 (July, 1946).

The cellular and fibrous structures of several pulp woods, and some effects of digestion conditions on morphology of the fiber, are illustrated. When rayon pulps are dissolved for preparation of spinning baths, the fibrillar structure disappears, which explains why rayon rags cannot be used for paper making. Twenty-seven photomicrographs. TTD:12-46.

RAYON STAPLE FIBER. Anon. *Norsk Textiltidende 27,* 200-1 (Nov. 1946).

Opinions of several Norwegian experts are quoted concerning the utility of rayon staple fiber and its future prospects. In general it is agreed that rayon staple has many useful properties and potential uses but that

as compared with cotton its range of utility is much narrower. Its affinity for dyes is more uniform; but rayon staple finds its best uses in blends and often it does not dye like the other components of the yarn. Dyeing is therefore a major problem. TTD:12-46.

SHRINKAGE CONTROL OF RAYON discussed at AATCC meeting. Anon. *Rayon Textile Monthly 27,* 588-9 (Nov. 1946).

Alrose's Definized Process, Cluett Peabody's BR-1 rayon stabilization process, and that using synthetic resins are the 3 methods considered for stabilizing viscose rayon fabrics. TTD:12-46.

STAPLE FIBER. Rayon staple: Fiber swelling as related to dyeing behavior. Stephan Jost, Eidgenössischen Materialprüfungs und Versuchsanstalt. *Textil-Rundschau 1,* 67-75 (Sept. 1946).

Chemically degraded rayon staple shows fundamental differences in dyeing behavior, governed by the conditions of degradation. Oxidative alkaline degradation sharply decreases dye uptake at equilibrium, but rate of dyeing remains unchanged. Acid hydrolysis does not affect either of these properties; swelling is less influential than in oxidative degradation. In fibers at the same degree of degradation the rate of dyeing is related to swelling capacity, but dye uptake at equilibrium is not influenced. Tests are reported with ordinary and hollow-fiber rayons. 30 references. TTD:12-46.

VISCOSE PROCESS. Patents digest of 2-bath coagulating viscose process development. Frank L. Durr, Pineles & Greene. *Rayon Textile Monthly 27,* 126-8, 196-7, 246-7, 300-1, 357-8, 414-17, 442 (Mar., Apr., May, June, July, Aug., 1946).

An exhaustive search of the patent field (both U. S. and foreign) is the basis for a survey of the viscose process. Patents are first classified according to the type of 2-bath process employed (i. e., using acid or not, using Lilienfeld type of plasticizing bath, hot bath, etc.). They are then listed in each category chronologically, being first separated by countries; and the essentials of each patent are briefly described. In the acid bath group H_2SO_4 is found to be the most common precipitating agent. The cuprammonium stretch spinning process is compared with the viscose process. TTD:12-46.

FIBER CONDITIONING. Fred J. Schiessler (to Celanese Corp. of Am.). USP 2 406 407, Aug. 27, 1946.

Staple fibers, especially cellulose acetate, are treated with a conditioning agent consisting of a mixture of a long-chain higher fatty acid, a vegetable oil and mineral oil, also a penetrating agent, to render them more amenable to spinning and other operations and to dispel the static electricity generated. TTD:12-46.

FIBER CONDITIONING. Harmon Howorth & Laurence C. Holt (to Celanese Corp. of Am.). USP 2 406 542, Aug. 27, 1946.

Continuous filaments, especially those of cellulose acetate, are treated with a self-scouring or self-emulsifying conditioning agent before cutting into staple fiber lengths in order to render them more amenable to spinning and other textile operations as well as to dispel static electricity generated. TTD:12-46.

CELLULOSE ACETATE FIBERS. Robt. E. Fothergill, Julian W. Hill & Alfred A. Johnson (to E. I. duPont de Nemours & Co.). USP 2 406 755, Sept. 3, 1946.

Modified cellulose acetate fibers which are nonbrittle and substantially insoluble in organic solvents are produced by incorporating in the spinning solution a small amount of mineral acid and a polysilicic acid partially esterified with a monohydric alcohol of 1-6 C atoms. TTD:12-46.

FIBER TREATMENT. Jos. E. Smith (to E. I. duPont de Nemours & Co.). USP 2 407 107, Sept. 3, 1946.

A treating composition for textile fibers comprises essentially aqueous dispersions of polymerized alkyl alkacrylates prepared by emulsifying alkyl alkacrylate monomers with polyvinyl acetate. The emulsion polymerization process is carried out in a much shorter time than heretofore required. TTD:12-46.

CRIMPING FILAMENTS. Frederick G. Dodge (to Celanese Corp. of Am.). USP 2 408 381, Oct. 1, 1946.

A permanent crimp and high resilience are imparted to cellulose acetate filaments, which are useful in comforters, sleeping bags, etc., by treatment in a solution containing a swelling agent at about 90°F 30 seconds, followed by immersion in a water bath 1-5 seconds at about 150-160°F, then drying. TTD:12-46.

SPINNERET. Wesley L. Webb (to Am. Viscose Corp.). USP 2 408 713, Oct. 1, 1946.

An even rate of flow through all the openings in the spinneret is obtained by inserting a distributor plate inside the spinneret and between its face and the supply duct feeding it. This distributor plate has a number of holes varying in size but none as small as the spinneret orifices (preferably none smaller than 0.03″), is about 1/32-¼″ thick, and is spaced about 1/16-¼″ back of the spinneret face. TTD:12-46.

CELLULOSE PURIFICATION. Clifford I. Haney, Mervin E. Martin & Troy M. Andrews (to Celanese Corp. of Am.). USP 2 408 849, Oct. 8, 1946.

By an improved treatment of sulfite wood pulp, wherein it is subjected to a multistage purification consisting essentially of treating with an aqueous alkali solution, washing, chlorinating in aqueous solution, washing again and repeating this process 2 or 3 times, a purified cellulose is obtained which is suitable for the manufacture of regenerated cellulose materials by the viscose or cuprammonium process or of cellulose acetate and other derivatives. TTD:12-46.

STAPLE FIBER PRODUCTION. Willie Holdsworth. USP 2 409 566, Oct. 15, 1946.

Staple fibers are produced from continuous filaments such as silk, rayon, etc., by a severing mechanism that cuts the slivers into relatively short lengths. This device is adapted for use in standard gill boxes and makes unnecessary carding, combing and repeated drafting. TTD:12-46.

RAYON CAKE HOLDER. D. C. F. Devos (to Courtaulds, Ltd.). Brit. P. 576 176. *Textile Mfr. 72,* 443 (Aug. 1946).

An improved device holds cakes of artificial thread such as rayon during washing and other liquid treatments. TTD:12-46.

COLORED VISCOSE RAYON. H. J. Hegan & S. Robertson (to Courtaulds, Ltd.). Brit. P. 576 263. *Textile Mfr. 72,* 444 (Aug. 1946).

Colored viscose threads are produced by dissolving in water coloring matter that is substantive to cellulose but insoluble in caustic alkali, the coloring matter being precipitated as a fine suspension by adding caustic alkali. After incorporating the alkaline suspension in the viscose, the comparatively concentrated colored viscose is injected into the main current of viscose as it passes to the spinnerets. TTD:12-46.

RAYON PACKAGES. C. C. Vanderhooven. Brit. P. 576 486. *Textile Mfr. 72,* 444 (Aug. 1946).

Large permeable packages of rayon thread are spun and collected in a rotatable can mounted on a revolvable plate. TTD:12-46.

TREATING RAYON THREAD. North American Rayon Corp. Brit. P. 576 724. *Textile Mfr. 72,* 492 (Sept. 1946).

Freshly spun rayon filament is subjected to continuous liquid treatment. TTD:12-46.

CELLULOSE PULP. K. af Schulten (to AB Cellinventor O. Y.). Swed. P. 117 257, Jan. 4, 1946.

Pulp with high alpha-cellulose content is made from wood or other raw material by digesting with an alkaline or acid bath in the customary way and then removing hemicelluloses by drawing off the digester liquor and replacing it with an alkali solution of the proper concentration for separating hemicellulose from alpha-cellulose. TTD:12-46.

DELUSTERED RAYON. M. Landa (to Bata A.-G.). Swed. P. 117 333, July 31, 1943.

Dry-spun viscose rayon is delustered by introducing into the viscose bath a high-melting wax compounded with a carbonate which is insoluble in the viscose solution. TTD:12-46.

VISCOSE. Ruggero Curti. Swiss P. 244 013, May 15, 1943.

Process for making spun filaments from viscose. TTD:12-46.

CELLULOSE SOLUTIONS. Heberlein & Co. A.-G. Swiss P. 244 321, Nov. 7, 1945.

A method for making stable cellulose solutions which do not gel. TTD:12-46.

CRIMP. Heberlein & Co. Swiss P. 244 820, Jan. 21, 1946.

A device for imparting permanent crimp to continuous filaments. TTD:12-46.

Protein fibers — I 3 b

PROTEIN FIBERS. Frederick K. Watson (E. I. duPont de Nemours & Co.). USP 2 403 251, July 2, 1946.

An improved method of producing protein fibers consists in extruding a solution containing a globular protein (at least 6 wt.% of protein) and a long-chain anionic surface-active agent into a coagulating bath, stretching the fibers, and hardening. TTD:12-46.

PEANUT PROTEIN. Geo. W. Irving, Jr., Arthur L. Merrifield, Raymond S. Burnett & Edw. B. Parker (to Secretary of Agriculture). USP 2 405 830, Aug. 13, 1946.

By an improved process peanut protein fractions are produced which may be directly utilized without further modification or treatment in adhesives, sizes, films, fibers, etc. TTD:12-46.

CASEIN FIBERS. Robt. L. Wormell (to Courtaulds, Ltd.). USP 2 406 650, Aug. 27, 1946.

By an improved process alcohol-insoluble casein is extracted from seeds such as bean or pea meal, nut meal, etc., a concentrate obtained containing 15% or even more of protein (instead of the usual 1% or less). The process consists essentially in treating the seeds with a solution of an alkaline reagent, water, and an organic solvent (40 vol.% or less). TTD:12-46.

PROTEIN FIBER. Francis C. Atwood (to Natl. Dairy Products Corp.). USP 2 408 026-7, Sept. 24, 1946.

A protein base fiber (for which the generic term prolon is suggested) produced by the reaction of formaldehyde and an acylating anhydride with a protein, has improved dyeing properties, is soft and pliable, and withstands long periods of boiling in water. TTD:12-46.

PROTEIN FIBERS. Edw. T. Cline (to E. I. duPont de Nemours & Co.). USP 2 409 475, Oct. 15, 1946.

Protein fibers whose modulus of elasticity and elastic recovery from stretch are closer to those of wool than heretofore, are produced by extruding an alkaline solution of a globulin protein (10-30% protein) into a coagulating bath containing 0.5-10% of a strong mineral acid, at least 10% of 1 or more inorganic salts, and formaldehyde, and then stretching. TTD:12-46.

PROTEIN SOLUTION. R. Signer. Brit. P. 577 263. *Textile Mfr. 72,* 493 (Sept. 1946).

The flow of protein spinning solutions to the spinning nozzles through the supply pipes is interrupted periodically to permit passage of water, thus keeping the pipes free of possibly adherent putrefiable solution. TTD:12-46.

CASEIN FIBERS. Coöperative Condensfabriek Friesland. Brit. P. 577 526. *Textile Mfr. 72,* 494 (Sept. 1946).

Protein (especially casein) fibers, filaments, etc., of improved strength and boiling resistance, are produced from an acid spinning bath in which the protein solution contains preferably less than 0.4 mol of free alkali per kg. of protein. TTD:12-46.

Synthetic fibers — I 4

MELT SPINNING. Bata a. s. Swiss P. 244 014, Oct. 26, 1944.

Method and apparatus for melt spinning of synthetic filaments. TTD:12-46.

Nylon type — I 4 a

POLYESTER FIBER. Structure of Terylene. W. T. Astbury & C. J. Brown, Univ. of Leeds. *Nature 158,* 871 (Dec. 14, 1946) (Cf. *Rayon Textile Monthly 27,* 600 (Nov. 1946).

Terylene, the new polyester fiber formed from ethyleneglycol and terephthalic acid, shows x-ray diagrams which indicate that drawing orients the molecular chains in 2 stages, first by straightening them parallel to one set of crystal planes, then by parallelizing these planes. TTD:12-46.

NYLON WASTE RECOVERY. Clovis D. Myers (E. I. duPont de Nemours & Co.). USP 2 407 896, Sept. 17, 1946.

Adipic acid and hexamethylene diamine are recovered from nylon waste (whether dyed or undyed or mixed with other materials) for reuse by repeated hydrolyzing of the waste with strong acids, preferably H_2SO_4. TTD:12-46.

LINEAR POLYAMIDES. L. Leben (to Imperial Chemical Industries, Ltd.). Brit. P. 576 102. *Textile Mfr. 72,* 443 (Aug. 1946).

The elasticity and strength of synthetic linear polyamide filaments is improved by impregnating the drawn or undrawn filaments with an alkaline condensed 1-stage phenol-formaldehyde resin dissolved in a non-reactive solvent. TTD:12-46.

COLD DRAWING NYLON. Imperial Chemical Industries, Ltd. Brit. P. 576 647. *Textile Mfr. 72,* 445 (Aug. 1946).

In cold drawing fine denier filaments, particularly of nylon, the synthetic linear polymer is prepared having a

finely divided inert material dispersed in it (e. g., polyhexamethylene adipamide and TiO_2, less than 0.05 wt.%), spun and cold drawn. TTD:12-46.

POLYAMIDES. E. I. duPont de Nemours & Co. Swiss P. 244 842, Sept. 2, 1939.

A method for making synthetic linear polyamides of the nylon type. TTD:12-46.

Vinyl resin type — I 4 b

ACRYLONITRILE. Theron G. Finzel (to E. I. duPont de Nemours & Co.). USP 2 404 728, July 23, 1946.

Clear, substantially colorless solutions of acrylonitrile polymers, especially suitable for yarns, films, etc., are formed by an improved process, which consists essentially of mixing a finely divided substantially colorless polymer in a solvent having a gaseous acidic anhydride, stirring and converting into a uniform slurry which is then heated at 100-150°C to effect solution of the polymer while evolving the gas (SO_2). TTD:12-46.

POLYVINYL ALCOHOL. E. M. Shelton & W. L. Thompson (to Johnson & Johnson Proprietary, Ltd.). Australian P. 122 340, Oct. 3, 1946.

The tensile strength of polyvinyl alcohol material is improved by conditioning to a moisture content about 6-12% and heating 4-8 hrs. at 140-180°C. TTD:12-46.

POLYTHIOUREA. Wm. E. Hanford & Paul L. Salzberg (to Can. Industries, Ltd.). Can. P. 437 009, Sept. 17, 1946.

Pliable fibers, showing orientation along the fiber axis, and films are obtained from polythiourea. TTD:12-46.

Fiber applications — I 5

IMPREGNATED FIBER WASTE. Robt. & John Pickles. USP 2 405 978, Aug. 20, 1946.

Staple fiber waste, particularly cotton flocks, unsuitable for spinning, is formed into a carded fleece or web and impregnated with a bonding agent (e. g., India rubber latex, cellulose acetate solution, phenol-formaldehyde, etc.), compressed into sheet or board form, and dried. TTD:12-46.

FIBER FELTS. Sylvania Industrial Corp. Brit. P. 577 534. *Textile Mfr. 72,* 494 (Sept. 1946).

An improved fibrous felt is made by associating non-adhesive fibers with synthetic adhesive fibers, formed from an organic plastic dispersion, admixture being effected immediately after forming the synthetic fibers. TTD:12-46.

DIELECTRIC HEATING. Bruno Jablonsky. USP 2 407 833, Sept. 17, 1946; Can. P. 437 181, Oct. 1, 1946.

Fibrous laminates (of wood, paper, textile fabrics,

pulp, etc.), are formed by pressure bonding under heat in a high frequency electric field, adhesives used having different electric loss factors. TTD:12-46.

FIBER-WOOD LAMINATES. B. F. Goodrich Co. Brit. P. 576 418. *Textile Mfr. 72,* 444 (Aug. 1946).

Plies of thin wood veneer with interposing plies of unwoven fiber webs, resin bonded, are of use in airplane production. TTD:12-46.

FORM. Bata A.-G. Swiss P. 244 331, June 5, 1944.

Process for making shaped forms from felted fibers and apparatus for carrying out this process. TTD:12-46.

INORGANIC FIBERS II

GLASS FIBER PRODUCTION. Allen L. Simison & Ed Fletcher (to Owens-Corning Fiberglas Corp.). USP 2 407 295 & 2 407 456, Sept. 10, 1946.

Glass fibers are produced by an improved process which, by means of accurate temperature controls, permits attenuation of the molten glass and at the same time prevents flooding of the tips. TTD:12-46.

TREATING FIBROUS GLASS. Paul Ebaugh (to Owens-Corning Fiberglas Corp.). USP 2 407 483, Sept. 10, 1946.

Such qualities of fibrous glass as its softness, feel, pliability, flexibility, strength, abrasion resistance, texture, and reduction of brashiness are improved by treatment of the yarn, thread, cable, fabric, or other form with an alkali hydroxide solution, preferably KOH, which effects essentially an etching of the glass that removes fuzzy, loose ends. TTD:12-46.

FELTED MINERAL WOOL. Edw. R. Powell & Harry E. Holcomb (to Johns-Manville Corp.). USP 2 409 066, Oct. 8, 1946.

A felted mat of mineral wool fibers is formed and treated with a suitable binder to produce a material of improved strength and one that is resistant to delamination. TTD:12-46.

GLASS FABRIC TREATMENT. J. Hatton-Hall & Rubbaglas, Ltd. Australian P. 122 272, Sept. 26, 1946.

In resin treating glass fabric, the fabric preferably is first etched with acid or sand blasted to provide a roughened surface for the resin. TTD:12-46.

GLASS FIBERS. Allen L. Simison (to Fiberglass Canada, Ltd.). Can. P. 437 125, Sept. 24, 1946.

Paralleled glass fibers are formed into bundles and pressure applied to press out excess lubricating liquid before sintering. TTD:12-46.

DYEING GLASS YARN. C. Maginot (to Algemeene Kunstvezel Mij. N. V.). Swed. P. 116 990, Oct. 6, 1941.

A pigment for coloring glass fiber is intimately blended with a binder such as natural or synthetic rubber, polyvinyl acetate, polyvinyl chloride or other resin, serving as an adhesive to bind the color particles to the glass fiber. TTD:12-46.

FIBER TO YARN III

Fiber preparation III 1

DRAFTING ROLLS. Louis M. Cotchett (to Saco-Lowell Shops). USP 2 409 255, Oct. 15, 1946.

An improved weighting mechanism for the top rolls of drawing and spinning frames is simple and sturdily constructed to permit easy pressure adjustment on the rolls through a saddle. TTD:12-46.

WEIGHTED DRAWING ROLLER. W. A. Hunter (to Howard & Bullough, Ltd.). Brit. P. 576 902. *Textile Mfr. 72,* 492 (Sept. 1946).

By an improved device pressure is easily and quickly applied through a camlever to drawing rolls, and the same pressure maintained for any given adjustment at all positions of the rolls. TTD:12-46.

ROVING FRAME CONTROL. W. A. Hunter & W. Rushton (to Howard & Bullough, Ltd.). Brit. P. 577 094. *Textile Mfr. 72,* 492 (Nov. 1946).

By means of an improved device on a speed frame the selvedge fibers of the sliver are better controlled during drafting. TTD:12-46.

WOOL COMBER. C. H. Biggins. Brit. P. 577 225. *Textile Mfr. 72,* 493 (Sept. 1946).

A wool combing machine has feeding mechanism and a large circle (Noble type) comb along with a revolving plate that imparts a continuous nip motion to the sliver. TTD:12-46.

Spinning III 2

GERMAN SPINNING. German model spinning mill. P. Larose & A. G. Burton *Textile Recorder 64,* No. 760, 51-3, No. 762, 44-5 (July, Sept. 1946).

Details of drafting experiments at a model plant (Denkendorf) are reported. TTD:12-46.

SPINNING OILS. Ease of washing out spinning oils. Edvard Neraal. *Norsk Textiltidende 27,* 202 Nov. 1946).

The saponifiable and unsaponifiable components of spinning oils are described, and the relations of saponifiable oils to ease of removing spinning oil stains are considered. TTD:12-46.

WOOL SPINNING. Progress of ring spinning in woolen yarn production. Harold T. Heathcote,

Victor Ring Traveler Co. *Traveler No. 118,* 8-15 (Jan. 1947).

The development of the woolen ring spinning frame is traced and a process of spinning briefly reviewed. The importance of cleaning and maintenance of rings is stressed. TTD:12-46.

DOFFING SPINNING FRAMES. John W. Tucker. USP 2 408 587, Oct. 1, 1946.

In doffing spinning frames full bobbins are removed and replaced with empty bobbins more efficiently than heretofore by a mechanical device that simulates the older manual operation. TTD:12-46.

SPINNING BUCKET. Henry J. McDermott (to Am. Viscose Corp.). USP 2 408 670, Oct. 1, 1946.

An improved spinning bucket for use in the viscose process, which facilitates the collection, and later the doffing, of artificial filamentary material consists essentially of a light-weight easily removable shell or liner with an interlocking cover. TTD:12-46.

SPINNING BOBBIN HOLDER. Jos. Noguera (to Casablancas High Draft Co., Ltd.). USP 2 408 674, Oct. 1, 1946.

An improved bobbin holder that suspends the bobbins in the creels of spinning frames consists essentially of a resilient U-shaped member mounted in a cylindrical casing having downwardly extending arms, one of which ends in a hook. TTD:12-46.

OILING SPINNING FLYERS. Hal McC. Adams (to Burlington Mills Corp.). USP 2 409, 523, Oct. 15, 1946.

On a spinning frame by an improved lubricating device oil is supplied by means of a wick through capillary action to the flyer block of a spindle, thus helping to prevent stretched yarn and broken ends in winding rayon yarn from the delivery bobbin to the takeup bobbin. TTD:12-46.

Winding III 3

YARN BREAKAGE IN WARPING. H. E. Wenrich. *Rayon Textile Monthly 27,* 601-2 (Nov. 1946).

Use of the horizontal system of warping, especially for high-twist yarns, is discussed.
HAM TTD:12-46.

WINDING BOBBINS. S. Scragg (to S. & E. Scragg, Ltd.). Brit. P. 576 209. *Textile Mfr. 72,* 443-4 (Aug. 1946).

A winding machine has a mechanism for producing a tapered package on either bobbins or flangeless tubes. TTD:12-46.

YARN WINDER. Louis M. Cotchett (to Foster Machine Co.). USP 2 408 135, Sept. 24, 1946.

A multiunit yarn winding machine is rendered semi-

automatic by means of a traveling tender mounted on an endless trackway. TTD:12-46.

TENSIONING. Jos. Turcotte (to Union Screen Plate Co. of Canada, Ltd.). Can. P. 437 362, Oct. 8, 1946.

A detachable sleeve secured to a tension bar is of use for pigtails, yarn guides, and other tension devices. TTD:12-46.

WINDER. Jas. Macky & Sons, Ltd. Swiss P. 244 015, July 27, 1944.

An improved winder for cross-winding of yarn on bobbins. TTD:12-46.

WINDING. Koefoed Hauberg, Marstrand & Helweg A/S Titan. Swiss P. 244 017, Jan. 6, 1945.

Guide for yarn strands under cross tension in winding on a layer of yarn. TTD:12-46.

WINDING. Koefoed Hauberg, Marstrand & Helweg A/S Titan. Swiss P. 244 018, Jan. 6, 1945.

Process for winding and tensioning squaring bands, cross yarns or cross tapes and a winder operating by this method. TTD:12-46.

Yarn processing III 4

COATING YARN. Natl. Oil Co. Brit. P. 576 646. *Textile Mfr. 72,* 444-5 (Aug. 1946).

A coating emulsion for high-twist synthetic yarns that prevents snarling and imparts pliability consists of a hydrogenated fatty oil (i. e., vegetable, animal, or marine) with a melting point about 30°C. TTD:12-46.

LUBRICATING YARN. C. C. Vanderhooven. Brit. P. 577 323. *Textile Mfr. 72,* 494 (Sept. 1946).

A uniform lubrication treatment is given to yarn as it is unwound from a storage device and then rewound, a slight initial tension being imparted to the yarn during treatment. TTD:12-46.

YARN STRETCHING. Rollin F. Conaway (to Can. Industries, Ltd.). Can. P. 437 010, Sept. 17, 1946.

Filaments, yarns, threads, and ribbons of cellulose acetate containing 5-100 wt.% water are stretched in a bath of potassium thiocyanate. TTD:12-46.

YARN DRYING. Harry S. Drum & Wm. C. Dodson (to Smith, Drum & Co.). Can. P. 437 155, Sept. 24, 1946.

Packages of yarn are dried by means of circulating heated air in a drying chamber having a base manifold. TTD:12-46.

STRETCHING. Chas. Haederli. Swiss P. 244 571, Dec. 16, 1943.

Apparatus for stretching artificial fiber products such as single yarns, tapes, or cables. TTD:12-46.

HANDLING FILAMENTS. Zellweger A.-G. Apparate—und Maschinenfabriken Uster. Swiss P. 244 578, May 14, 1945.

A device for separating juxtaposed filaments. TTD:12-46.

Yarn products **III 5**

BRISTLES. John Overbeke. USP 2 406 707, Aug. 27, 1946.

A fibrous cord uniformly impregnated with glue or similar viscous substance is rewound from a takeup reel and cut on a severing reel into suitable lengths for brush bristles. TTD:12-46.

ROPE. Edw. H. White (to Whitecross Co., Ltd.). Can. P. 437 457, Oct. 15, 1946.

A nontwisting rope has a wire core to which an overtwist has been given and 2 covering layers (an inner and an outer) of wire or the like, both of which are laid to the opposite hand to that of the core. TTD:12-46.

TWINE. John H. Watson, Hugh E. Anderson & Edw. R. Angel. Swiss P. 244 016, Mar. 13, 1945.

Process for making cord or wrapping twine. TTD:12-46.

YARN TO FABRIC IV

TEXTIELWAREN. W. J. C. van Paassen & J. H. Ruygrok. J. B. Wolters, Groningen 1946; Ed. 11; 272 pp.; price F2.90.

Reviewed in *Textielwezen 2,* 620 (Nov. 1946). TTD:12-46.

Yarn preparation **IV 1**

SIZING NYLON YARN. Harry R. Dittmar (to E. I. duPont de Nemours & Co.). USP 2 406 749, Sept. 3, 1946.

An improved size for nylon yarn for knitting full-fashioned hosiery consists essentially of a polyvinyl alcohol-boric acid composition to which is added a polydioxolane. Example: polyvinyl alcohol-boric acid 6, polydioxolane adipate 4, and water 90 parts. TTD:12-46.

Warp sizing **IV 2**

SLASHER DRIVES—electrical and mechanical speed control. F. A. Westbrook. *Textile Mfr. 72,* 465-7 (Sept. 1946).

Two new types of drives, developed in U. S., which overcome certain old difficulties such as maintaining the right tension, moisture content, etc., are briefly described and illustrated. TTD:12-46.

YARN SIZE. Daniel E. Strain, Can. P. 437 003, & Edgar W. Spanagel, Can. P. 437 004 (to Can. Industries, Ltd.), Sept. 17, 1946.

A synthetic linear polyamide yarn (e. g., nylon), particularly for use in knitting full-fashioned hosiery, is sized with a composition consisting of boric acid, polyethylene oxide, and a hydroxylated polyvinyl resin. TTD:12-46.

Weaving **IV 3**

FABRICS. Reproducing a fabric. T. G. Creyf. *Textielwezen 2,* 591-3 (Nov. 1946).

To weave a fabric as nearly as possible identical with a given sample it is important to watch loom tension so that crimp will not vary too much. The yarn of which the sample is composed must be examined not only for count and twist but also for the kind of fiber. An imitation of a fabric for women's garments is illustrated by a table showing properties of the original sample and the imitation. TTD:12-46.

WEAVERS. Personal side of weaving—V. W. Middlebrook, Brocklehurst-Whiston Amalgamated. *Textile Mfr. 72,* 402 (Aug. 1946).

Promotion of happy working conditions is an important part of the overseer's job. TTD:12-46.

WEAVING. Ramble through weaving and textile design. W. Morrison. *Textile J. Australia 21,* 448-52 (Sept. 1946).

A brief general survey discusses patterns and designs in weaving. TTD:12-46.

Looms **IV 3 a**

FANCY WORSTED MANUFACTURE with convertible automatic looms. F. H. Brook. *Textile Mfr. 72,* 410-11 (Aug. 1946).

The desirability of converting a 4 x 1 box automatic to a 4 x 4 box nonautomatic is discussed and the procedure briefly outlined, particularly with reference to the Crompton and Knowles Loom, W3 model. TTD:12-46.

LOOM DESIGN. Developments in loom design—VI. S. A. G. Caldwell. *Textile Mfr. 72,* 419-20 (Aug. 1946).

Adoption of more automatic machinery for jute and linen weaving is discussed. Natural inelasticity of jute and linen yarns and higher degree of specialization, with short runs, are factors which hinder use of automatic equipment. TTD:12-46.

LOOM OPERATION. Loom shedding and timing mechanism—VII. S. A. G. Caldwell. *Textile Mfr. 72,* 456-7 (Sept. 1946).

In jute and linen weaving fabric structure and design, being either relatively simple or highly complex, are such that correct timing of the shedding mechanism is an important factor. The function and types of tappets in shed formation are discussed in some detail. TTD:12-46.

WARP BEAM. New warp beam weighting motion. Anon. *Textile Recorder 64,* No. 762, 41-2 (Sept. 1946).

An effective device (manufactured by Lupton Bros., Ltd.) that eliminates lifting of loom weights by the operator is described and illustrated. TTD:12-46.

JACQUARD LOOM. Jonas Robinson. USP 2 386 574, Oct. 9, 1945. (Re. 22 804, Oct. 15, 1946).

See TTD:11-45, p. 548. TTD:12-46.

CIRCULAR LOOM. Constantine A. Caldes. USP 2 408 732, Oct. 8, 1946.

Production is increased on a circular loom through an improved shuttle drive and means for separating the warp in the passage of the shuttles through the shed. TTD:12-46.

SHUTTLELESS LOOM. C. H. Baddeley. Brit. P. 577 307. *Textile Mfr. 72,* 493 (Sept. 1946).

By means of an improved weft feed for a stationary weft supply on a shuttleless loom (cf. Brit. P. 575 804) the weft is freed during the picking motion by a draw-off device that releases the trapping and retaining means. TTD:12-46.

WEAVING. Rudolf M. Anton. Swiss P. 244 573, Apr. 10, 1945.

An improved loom for weaving textile fabrics. TTD:12-46.

WEAVING. S. A. des Mecaniques Verdol. Swiss P. 244 574 & 244 576, Feb. 22, 1945.

Improvements in looms for weaving textile fabrics. TTD:12-46.

Loom parts **IV 3 b**

BUFFALO HIDE PICKERS. Anon. *Textile Recorder 64,* No. 762, 46-7 (Sept. 1946).

The care and maintenance and the various types of pickers, the steeping and drying of them, and their use on looms are described. TTD:12-46.

WEFT TENSION. Norman Fletcher (to Crompton & Knowles Loom Wks.). USP 2 407 773, Sept. 17, 1946.

An improved weft tension for Axminster looms is automatically controlled by the whip stick throughout loom operation and is independent of the needle position. TTD:12-46.

PICKER STICK CHECK. Wallace Hamilton (to Draper Corp.). USP 2 408 636, Oct. 1, 1946.

An improved picker stick check that engages the stick by progressively applying a gradually increasing retarding force, consists essentially of a relatively long narrow strap having spirally wound loops whose ends are secured beneath the lay on opposite sides of the picker stick. TTD:12-46.

LOOM HEDDLE FRAMES. John O. Hunt (to Mountain City Foundry & Machine Co.). USP 2 408 645, Oct. 1, 1946.

An improved actuating motion for a pair of heddle frames on a loom reduces the breakage of warp threads by reducing the back and forth movement of the threads through the heddle eyes during shedding. TTD:12-46.

LOOM SHUTTLE. John J. Kaufmann, Jr. (to Steel Heddle Mfg. Co.). USP 2 408 981, Oct. 8, 1946.

An improved automatically threading loom shuttle insures passage of filling yarn through the threading block to the side delivery eye and largely prevents fouling of the filling yarn or unthreading. TTD:12-46.

LOOM SHUTTLE. Richard G. Turner (to Crompton & Knowles Loom Wks.). USP 2 409 003, Oct. 8, 1946.

The tip of a loom shuttle is made of rubber so that wear on the shuttle picker is appreciably reduced. TTD:12-46.

BEATUP MECHANISM. D. W. Shimwell. Australian P. 122 287, Oct. 3, 1946.

The loom cycle speed is increased without increasing the speed of the shuttle by an improved weft beatup mechanism whereby the beating-up comb enters the warp threads next to a reed from above, travels to the beatup point and withdraws with upward movement. TTD:12-46.

PICKER. Juan Endefaque Roig. Swiss P. 244 316, Dec. 23, 1944.

An improved picker drive device for looms. TTD:12-46.

HEDDLES. Grob & Co. A.-G. Swiss P. 244 318, Apr. 10, 1945.

A shaft of heddles for looms, and a method of making it. TTD:12-46.

DOBBY. S. A. des Mecaniques Verdol. Swiss P. 244 575, Feb. 22, 1945.

An improved dobby for use on looms. TTD:12-46.

LOOM PARTS. Grob & Co. A.-G. Swiss P. 244 577, July 17, 1945.

An improved design for a shaft of healds. TTD:12-46.

LOOM BRAKE. Giacomo Masserini. Swiss P. 244 816, Nov. 20, 1942.

An improved brake band for use on looms. TTD:12-46.

WEAVING. Zellweger A.-G. Apparate— und Maschinenfabriken Uster. Swiss P. 244 817, Apr. 12, 1945.

A device for distributing the warp yarn lease. TTD:12-46.

Control devices **IV 3 c**

THREAD TENSION REGULATOR. Jos. R. Fish. USP 2 407 545, Sept. 10, 1946.

A uniform, constant tension is maintained, on synthetic yarns such as rayon, in automatic loom shuttles by an improved device which adjusts the speed of the thread to the relative speed of the loom and employs a thread receiver beyond the pulling rolls in which the yarn is carried along by air currents operating on the aspirator principle. TTD:12-46.

Fabric construction **IV 3 d**

PROTECTIVE CLOTH. Jan V. Weinberger. USP 2 409 087, Oct. 8, 1946.

A thick, dense, woven cloth, particularly designed as a protection for those in combat against penetration by bullets, shrapnel, etc., comprises a number of tightly bound large gage filler courses extending weftwise, the courses being in a staggered relationship one to another. For even greater protection 2 or more of these cloths may be joined together in a laminated construction by binding threads, rivets, or other means. TTD:12-46.

NONCURLING FABRIC. Ross C. Whitman (to Kendall Co.). USP 2 409 089, Oct. 8, 1946.

A noncurling fabric, having greater stiffness in 1 yarn direction than in the other, comprises interwoven warp and filling yarns, 1 of which sets consists of oppositely twisted yarns reactive to a gelatinizing or fusing treatment (as with $ZnCl_2$). Such fabrics are particularly desirable in the manufacture of collars and cuffs, clothing interliners, and the like. TTD:12-46.

WOVEN BAG CLOSURE. Robt. Debate (to Bemis Bros. Bag Co.). Can. P. 436 981, Sept. 17, 1946.

A bag cut from an open-mesh woven web has an improved prewoven draw cord closing the mouth. TTD:12-46.

TOWELING. Rudolf Leone. Swiss P. 244 317, Nov. 1, 1945.

Method for weaving towel fabrics, and toweling woven by this method. TTD:12-46.

Knitting machines **IV 4 a**

KNITTING MACHINE. Norman H. Smith (to Hemphill Co.). USP 2 408 698, Oct. 1, 1946.

On an independent needle knitting machine true rib and combination rib and plain fabrics are knitted by an improved method of loop transfer whereby the loops are drawn over the backs of the sinkers behind the nibs at a definite height and then from the back to the throats of the sinkers over the tops of the nibs, thus exerting an equalizing effect upon the needle loops. TTD:12-46.

SEAMLESS HOSIERY KNITTER. Geo. Norman (to Spalding Knitting Mills). USP 2 408 807, Oct. 8, 1946.

In knitting seamless hosiery on circular knitting machines instead of uniting the fabric edges of the toe pockets after completion of the knitting operation by a separate looping operation, the toe closure is effected automatically, incident to production of the stockings, by means of a machine having 2 coaxial superposed cylinders, each with a series of needles extending approximately half way around it. TTD:12-46.

WARP KNITTING MACHINE. Louis N. Feinstein (to Feinstein Knitting Mills, Inc.). USP 2 409 026, Oct. 8, 1946.

By an arrangement of the links of a pattern chain a diamond-shaped fabric is automatically knitted on a warp knitting machine. TTD:12-46.

KNITTING MACHINE. Albert E. & Frank R. Page (to Scott & Williams, Inc.). USP 2 409 306, Oct. 15, 1946.

On a latch needle (short or long) knitting machine (for knitting hosiery) a pivotally mounted throat plate is lowered at substantially the same time that a yarn guide moves to feeding position in order to present yarn to a needle hook. TTD:12-46.

KNITTING MACHINE. Henry H. Holmes & John C. H. Hurd (to Wildt & Co., Ltd.). Can. P. 437 058, Sept. 17, 1946.

A knitting machine with 2 needle beds has independent loop transfer instruments, permitting lateral transfer of loops, and individually operable lap thread guides for feeding embroidery threads. TTD:12-46.

TRIKAVARANS TEKNOLOGI. III. FLATA OCH RUNDA KULIRVIRKMASKINER, KETTENVIRKMASKINER. TECHNOLOGY OF TRICOT KNITTING. (III. FLAT AND CIRCULAR WEFT KNITTING MACHINES; WARP KNITTING MACHINES.) Alf Lindström. Boras, Sweden, 1946; 60 pp.; about 150 illustrations; price Kr. 6.

Reviewed by Sten Ringius in *Textil och Konfektion 3,* 356-7 (Oct. 1946). TTD:12-46.

Fabric construction **IV 4 d**

SEAMLESS STOCKINGS. Geo. Norman (to Spalding Knitting Mills). USP 2 408 440, Oct. 1, 1946.

Seamless stockings are produced in continuous strings without the use of looping machines whereby the closed toe of 1 stocking blank is joined by temporary connecting loops to the top of the next blank. TTD:12-46.

FULL-FASHIONED HOSIERY. Sterling C. Mack (to Julius Kayser & Co.). USP 2 409 138, Oct. 8, 1946.

Full-fashioned, weft knitted hosiery is knitted by sin-

gle unit ringless construction wherein strong, nonraveling selvedges are obtained without any floats running along them between the series of courses.
TTD:12-46.

RIB FABRICS. F. Bonser (to Interlock Patents, Ltd.). Brit. P. 576 052. *Textile Mfr. 72,* 443 (Aug. 1946).

An improved method of knitting ribbed fabrics (not interlocking) (cf. Brit. P. 329 098). TTD:12-46.

FULL FASHIONED STOCKINGS. J. C. White & J. E. Hilditch (to Full Fashioned Hosiery Co., Ltd.). Brit. P. 576 284. *Textile Mfr. 72,* 444 (Aug. 1946).

Full fashioned hosiery with an unspliced leg, instep, and foot is produced on a straight-bar knitting machine by first knitting the leg then increasing and decreasing the fabric width to form a heel bulge at each edge and then knitting the foot. TTD:12-46.

KNITTED LINGERIE. L. Biholy (to Trubenized, Ltd.). Brit. P. 576 499. *Textile Mfr. 72,* 444 (Aug. 1946).

Breast cups for brassieres are formed from knitted fabric containing thermoplastic and nonthermoplastic yarns, which are stretched to the desired shape and fixed by heat and pressure. TTD:12-46.

KNITTED FABRIC. G. T. Hebert. Brit. P. 576 638. *Textile Mfr. 72,* 444 (Aug. 1946).

A nonladdering fabric is knitted in such a way that each row of stitches is made with twin threads, 2 threads of each stitch in a row forming 2 separate upward loops which are linked with non-adjacent downward loops of the row above. TTD:12-46.

FULL FASHIONED STOCKING. L. H. Colton (to I. L. Berridge & Co., Ltd.). Brit. P. 576 662. *Textile Mfr. 72,* 445 (Aug. 1946).

By an improved method a full-fashioned selvedged stocking is knitted on a straight-bar knitting machine having bearded needles of which the central group are held inactive while those on the side continue knitting.
TTD:12-46.

SEAMLESS HOSIERY. B. T. R. Reymes-Cole (to B. Toone, Ltd.). Brit. P. 577 215. *Textile Mfr. 72,* 493 (Sept. 1946).

A mock seam is formed in seamless hosiery by knitting an additional thread into every second course of wales.
TTD:12-46.

HOSIERY KNITTING. Scott & Williams, Inc. Brit. P. 577 546. *Textile Mfr. 72,* 494 (Sept. 1946).

Hosiery having terry cloth covering the heel and toe pockets is knitted on a circular knitting machine.
TTD:12-46.

Pile fabrics IV 5

VELVET. New method for making velvet. M. D. *Textielwezen 2,* 601 (Nov. 1946).

The principal difficulties in the electrostatic method of depositing flock on an adhesive in making pile fabrics are even distribution of the pile and effective use of the adhesive layer. The principal advantages are high pile density, controllability of pile fiber lengths, versatility in pattern and color effects, and relatively low production cost. Pile fabrics made in this way are expected to be serious competitors of woven pile fabrics for upholstery, but less so for garment fabrics since the bonded pile fabrics tend to be comparatively stiff.
TTD:12-46.

PILE FABRIC. Jas. N. Dow & Ara T. Dildilian (to Bigelow-Sanford Carpet Co., Inc.). USP 2 408 756, Oct. 8, 1946.

An improved process of tape seaming and frayproofing the cut edges of pile fabric floor covering consists essentially in impregnating the fabric backing with a thermoplastic adhesive under heat and such pressure as will not crush the pile. A preferred example of a tape adhesive: copolymer vinyl chloracetate 10, tricresyl phosphate 2.3, and slaked lime 0.1 parts.
TTD:12-46.

PILE FABRIC. Leroy N. Linscott (to Alexander Smith & Sons Carpet Co.). USP 2 408 861, Oct. 8, 1946.

A looped pile fabric, particularly for use in molded rubber materials such as tire retreads has an interwoven pile filler extending transversely of the fabric (in the case of tire retreads the filler is rubber).
TTD:12-46.

Narrow fabrics IV 6

BRAIDED CATHETER. Norman C. Jeckel (to U. S. Catheter & Instrument Corp.). USP 2 407 929, Sept. 17, 1946.

A strong flexible catheter that resists longitudinal tension is tightly and uniformly braided in alternate cylindrical and tapered portions and coated inside and out with a lacquer or varnish. TTD:12-46.

LADDER WEBBING. Geo. F. French (to Roger & Geo. F. French). USP 2 408 839, Oct. 8, 1946.

Ladder webbing, such as for Venetian blinds, is of integrally woven construction with 2 main webs or bandings having exterior faces of different colors and connected at the interior faces by cross tapes colored so that they include the colors of both the outer webs.
TTD:12-46.

CORDED TAPE. Jas. A. Hendley (to Russell Mfg. Co.). USP 2 408 850, Oct. 8, 1946.

An improved corded fabric tape, such as for mounting slide fasteners, consists essentially of a relatively thin fabric having longitudinal warp strands and transverse

weft strands and a relatively thick twisted cord strand extending along 1 edge. TTD:12-46.

SLITTING NARROW FABRICS. R. G. Boyden. Brit. P. 576 894. *Textile Mfr. 72,* 492 (Sept. 1946).

A slitting machine has an improved carrier knife wheel for use in making narrow fabrics, paper, etc. TTD:12-46.

NARROW FABRIC LOOM. W. Holt (to J. & N. Philips & Co., Ltd.). Brit. P. 577 550. *Textile Mfr. 72,* 494 (Sept. 1946).

A narrow fabric multiple web loom has a single warp beam constructed at the back. TTD:12-46.

CANVAS HOSEPIPE. Neil Lawson. Can. P. 437 288, Oct. 8, 1946.

A seamless canvas hosepipe is woven of warp and weft threads, with some of the warp threads standing out from the surface of the hosepipe. TTD:12-46.

Fancy fabrics — IV 7

FABRIC ORNAMENTATION. Ludwig Kaphan. USP 2 397 743, Apr. 2, 1946.

Thermoplastic materials are heat-bonded to a flexible fabric backing to produce an ornamental material. Cellulose derivative plastics, especially cellulose acetate, are especially suitable for this purpose. TTD:12-46.

HAIR NETS. A. E. Hunter (to Byard Mfg. Co., Ltd.). Australian P. 122 263, Sept. 26, 1946.

Hair nets, nightcaps, and similar fabrics are produced on a twist lace machine whereby the meshes in the center are more open than those at the edges. TTD:12-46.

Fabric processing — IV 8

SHRINKING FABRICS. Franklin Chatfield (to Munsingwear, Inc.). USP 2 409 543, Oct. 15, 1946.

Fabric is subjected to an improved preshrinking treatment whereby it is alternately transversely wrinkled and dewrinkled as it is passed through a steam chamber. The tendency of fabric so treated to shrink further in subsequent washing or laundering processes is substantially eliminated. TTD:12-46.

TENTERING CLOTH. F. Bailey. Brit. P. 577 158. *Textile Mfr. 72,* 492-3 (Sept. 1946).

Brushes on each side of a cloth tentering machine engage the selvedges and hold the cloth in contact with the moving pins. TTD:12-46.

TREATING FABRICS. Heberlein & Co. A.-G. Swiss P. 244 580, Mar. 5, 1945.

A device for feeding fabrics to textile processing machinery. TTD:12-46.

Insulation — IV 9 a

VARNISHED CLOTHS FOR ELECTRICAL INSULATION. H. W. Chatfield & J. H. Wredden. J. & A. Churchill, Ltd., London; 1946; 254 pp.; price 21s.

Reviewed in *Textile Recorder 64,* No. 762, 42 (Sept. 1946). TTD:12-46.

Coated products — IV 9 b

CURING COATED FABRICS. Radiant heating technique for curing plastics. Anon. *Textile Recorder 64,* No. 762, 43 (Sept. 1946).

By means of radiant heat a textile fabric coated with polyvinyl chloride is cured in from ½ to 3 minutes at a panel temperature of 650°F. A gas-fired radiant heating panel is described and illustrated. TTD:12-46.

NYLON COATING. Robt. M. Leekley (to E. I. duPont de Nemours & Co.). USP 2 405 965, Aug. 20, 1946.

Thin nylon films, useful as a finishing coat for leather and fabrics, as a textile size, and as a coating for metal, particularly cans, are formed from aqueous emulsions obtained from a solution of a polyamide in an organic solvent and containing a surface-active agent. TTD:12-46.

COATED ACETATE SCREENING. Camille Dreyfus. USP 2 407 632, Sept. 17, 1946.

A highly flexible weather-resistant screening material, that may be rolled or folded without damage, is woven from stretched saponified cellulose acetate yarns coated with a moisture resistant cellulose derivative (at least 100 wt.%) such as ethyl cellulose, cellulose propionate, cellulose acetate-butyrate, etc. TTD:12-46.

WIRE REINFORCED FABRIC. Alan E. Brickman (to Am. Steel & Wire Co.). USP 2 408 368, Oct. 1, 1946.

A 2-ply wire-reinforced fabric, particularly for use in tire tread, has latex coated cotton cords arranged in a plain weave such that frictional contact among the wires is prevented. By applying heat to the fabric the latex fuses, covering the outside surfaces and filling the interstices. TTD:12-46.

MEDICATED SURGICAL GAUZE. Harry Sobotka (to Mt. Sinai Hospital Research Foundation, Inc.). USP 2 408 818, Oct. 8, 1946.

In impregnating surgical gauze dressings with sulfanilamide and its derivatives greater retention of the sulfur compound in the material is secured by the addition of a bonding agent consisting essentially of a cellulose ether (e. g., ethyl or methyl cellulose). The impregnant so fixed on the fibers of the gauze material shows no tendency to dusting upon drying nor does it wash out during the subsequent autoclaving treatment. TTD:12-46.

RUBBERIZED FABRIC. J. W. Illingworth (to Dunlop Rubber Co., Ltd.). Australian P. 122 227, Sept. 19, 1946.

A textile fabric is treated with an adhesive composition (preferably the condensation product of resorcinol and formaldehyde), and a sheet of unvulcanized rubber is then bonded to it in an atmosphere of superheated dry steam. TTD:12-46.

FABRIC COATING. Shawinigan Chemicals, Ltd. Brit. P. 576 134. *Textile Mfr. 72,* 443 (Aug. 1946).

A moistureproof coating for fabric, leather, etc., consists of a polyvinyl acetate emulsion, produced by emulsion polymerization of vinyl acetate in at least 1 organic hydrophilic colloid and a wax with a melting point between 47 and 140°F. TTD:12-46.

COATINGS. Societa Paravinil. Swiss P. 244 125, Mar. 15, 1945.

Process for coating either rigid or flexible surfaces with an acid-resisting insulating varnish having as its resin component a polymer of the vinyl, styrene or acrylic type. TTD:12-46.

BELTING. Bata A.-G. Swiss P. 244 902. Nov. 15, 1944.

A method for vulcanizing endless belts made of rubberized fabric. TTD:12-46.

Laminates **IV 9 c**

CREEP PROPERTIES OF LAMINATES. Tension and torsion creep properties of cloth laminates. Jos. Marin, Penn. State College. *ASTM Bull.* No. 143, 38-48 (Dec. 1946).

Creep test data, made on 3 cloth-based laminated plastics, are interpreted by 3 methods: log-log, semi-log, and hyperbolic sine. A theoretical correlation between the tension and torsion creep values, based on a distortion energy criterion, permits the prediction of torsion-creep deformations when creep constants for tension are known. 11 tables, 22 graphs and 6 illustrations. TTD:12-46.

POLYVINYL ALCOHOL LAMINATES. Chas. A. Porter (to Resistoflex Corp.). USP 2 408 682, Oct. 1, 1946.

Laminated sheets of reinforced polyvinyl alcohol are formed by molding under heat and pressure alternate layers of the plastic and fibrous reinforcement, the textile or other fibrous reinforcing material being first immersed in an ethyleneamine solution (e. g., tetraethylene pentamine) to improve the adhesion properties. TTD:12-46.

Specialty uses **IV 9 d**

PARACHUTE FABRIC. Frank G. Manson & Jas. J. Maskey. USP 2 409 370, Oct. 15, 1946.

A light-weight, substantially nontearing parachute fabric is constructed of light warp and filling thread

reinforced with networks of heavy and medium heavy threads, forming, respectively, primary and secondary rip-stops. TTD:12-46.

CHEMICAL RAW MATERIALS V

MODERN ORGANIC CHEMICALS in textile industries. W. H. Dicken & D. H. Stott. *Textile Mfr. 72,* 436-7 (Aug. 1946).

A brief survey of some new types of synthetics, particularly for finishing. TTD:12-46.

Cellulose derivatives **V 1 a**

ACETATE. Deutsche Celluloid-Fabrik A.-G. Swiss P. 244 607. Mar. 6, 1944.

A process for making liquid to pasty compositions from secondary cellulose acetate. TTD:12-46.

PLASTICS. Deutsche Celluloid-Fabrik A.-G. Swiss P. 244 609, Mar. 8, 1944.

A process for making plastic compositions from cellulose esters. TTD:12-46.

Synthetic resins **V 1 c**

VINYL BUTYRAL. Background material on vinyl butyral in textile applications. Anon. *Rayon Textile Monthly 27,* 603-4 (Nov. 1946).

Vinyl butyral, now in commercial production (by Monsanto Chemical Co.), said to be superior to vinyl chloride as a thermosetting plastic and to all other plastics tested in adhesive properties, is used for coating textiles.
HAM TTD:12-46.

RESIN COATING. Harold W. Arnold (to E. I. duPont de Nemours & Co.). USP 2 408 402, Oct. 1, 1946.

By an improved process trichloroethylene copolymers are prepared which are of use in plastics, coatings, and adhesives for textiles, wood, leather, etc. TTD:12-46.

RESIN CHLORINATION. Oliver W. Cass (to E. I. duPont de Nemours & Co.). USP 2 408 608-9, Oct. 1, 1946.

Vinylidene chloride-vinyl chloride (Saran type) resins are rendered more stable to heat, and their low softening points are raised, by a chlorination treatment whereby 3-15% Cl is introduced. TTD:12-46.

VINYLIDENE CHLORIDE POLYMERS. Ralph M. Wiley (to Dow Chemical Co.). USP 2 409 521, Oct. 15, 1946.

In producing foils, films, filaments, etc., by the extrusion of vinylidene chloride polymers bubble formation (apparently from the inclusion of air in the polymers) is prevented by introducing a chlorinated lower aliphatic hydrocarbon (e. g., CCl_4) vapor into the extrusion cylinder. TTD:12-46.

PLASTIC FABRIC. T. W. Stedman (to Firestone Tire & Rubber Co.). Australian P. 122 385, Oct. 17, 1946.

Plastic monofils (preferably a vinylidene chloride polymer and a plasticizer) are woven into a flexible nonflammable fabric and subjected to heat and pressure to compact the strands. TTD:12-46.

CONDENSATION RESIN. Wm. J. Burke & Jas. H. Werntz (to Can. Industries, Ltd.). Can. P. 437 008, Sept. 17, 1946.

A textile finish consists of a water-soluble condensation resin prepared by reacting at about 100°C bis(methoxymethyl)urea with a glycol and a hydrocarbon monosulfonamide. TTD:12-46.

CELLULOSE ACETATE FILM. Henry Dreyfus. Can. P. 437 268, Oct. 1, 1946.

Thick sheets of nonelastic cellulose acetate are formed by applying cellulose in acetone solution on the smooth surface of a polyacrylic acid coating, evaporating the acetone, stripping the sheet formed, and evaporating the remaining acetone. TTD:12-46.

FOILS. Federico Werner. Swiss P. 244 843, Feb. 3, 1944.

Process for making transparent or translucent foils from a polyvinyl resin base to serve as glass substitutes, translucent tracing paper, moistureproof wrapping foils and the like. TTD:12-46.

EXPERIMENTAL PLASTICS AND SYNTHETIC RESINS. G. F. D'Alelio. John Wiley & Sons, New York City, 1946; 185 pp.; price $3.00.

Reviewed in *Nature 158,* 689 (Nov. 16, 1946). TTD:12-46.

Elastomers V 2

RUBBERIZED FABRIC. G. N. Hamilton & C. T. Suchy (to Callenders Cable and Construction Co., Ltd., through Callender-Suchy Developments, Ltd.). Brit. P. 577 291. *Textile Mfr. 72,* 493 (Sept. 1946).

Fabric is bonded to rubber by first depositing upon it a bonding metal, the metalized fabric being then applied to the unvulcanized rubber base and then vulcanized. TTD:12-46.

Adhesives V 3

LAMINATING ADHESIVE. W. Kershaw, C. J. Whitelegg & G. W. Eisig (to Bleachers' Assn., Ltd.). Brit. P. 577 569. *Textile Mfr. 72,* 494 (Sept. 1946).

An adhesive for laminated fabrics (particularly collars, cuffs, etc.) consists of a polyvinyl paste emulsion, which is applied to one or both fabric faces before applying heat and pressure. Example of an oil-in-water emulsion: 50 wt. % polyvinyl chloride paste stirred into 50 parts of a 5% aqueous solution of Cellofas W. L. B. TTD:12-46.

Surface-active compounds V 4

SURFACE CHEMISTRY. 2-dimensional transport at fluid interfaces. D. J. Crisp, Cambridge Univ. *Trans. Faraday Soc. 42,* 619-35 (Sept.-Oct. 1946).

Rates of flow and surface pressure gradients are measured simultaneously on moving films. The process of interfacial transport under the influence of surface flow is shown to be likely wherever mobile interfaces are in contact with solutions of surface-active material at different concentrations, the process being accelerated by convection currents set up in the solutions. TTD:12-46.

DETERGENT. Geo. W. Seymour & Victor S. Salvin (to Celanese Corp. of Am.). USP 2 408 127, Sept. 24, 1946.

By an improved condensation process that effectively controls the length of the carbon chain, unsaturated aldehydes and ketones are prepared which are useful as antifoaming agents and, when sulfated, form stable surface-active agents or detergents. TTD:12-46.

DETERGENT. R. J. Fitzgerald. Australian P. 122 312, Oct. 3, 1946.

A detergent composition consists of a mixture of finely divided anhydrous soap and an alkaline silicate. TTD:12-46.

TEXTILE DETERGENT. G. G. Edmond (to G. U. D. Mfg. Co. Proprietary Ltd.). Australian P. 122 379, Oct. 10, 1946.

A textile cleaning preparation consists of an emulsion containing sulfonated water-soluble trichlorethylene 30 and tetrachlorethylene 20 vol. parts, to which may be added sodium oleate (2 vol. parts) in dilute aqueous NH_3 solution. TTD:12-46.

WETTING AGENT. J. R. Geigy A.-G. Swiss P. 244 579, Mar. 3, 1944.

A process for making a water-soluble sulfonated condensation product. TTD:12-46.

CHEMICAL PROCESSING VI

TEXTILE CHEMICAL. New dyeing assistant and scouring agent. M. Mytelka, Dexter Chemical Corp. *Rayon Textile Monthly 27,* 607-9 (Nov. 1946).

Oridex D, a blend of the potassium salts of sulfated amide condensation products of straight chain acids, is of use in the dyeing of rayon and in the scouring and fulling of woolens.
HAM TTD:12-46.

FABRIC TREATMENT. Wm. Charlton, Stanley G. Jarrett & Eric E. Walker (to Imperial Chemical Industries, Ltd.). USP 2 406 453-4, Aug. 27, 1946.

A vinyl-resin finishing treatment for fabrics. In an example woolen serge cloth is impregnated with a

solution of methacrylic acid 5, ammonium persulfate 2, and water 93 parts for 30 minutes, removed, squeezed, exposed to CO_2 for 30 minutes, washed, and dried. TTD:12-46.

STARCH BINDER. Marion F. Smith & Harold W. Greider (to Philip Carey Mfg. Co.). USP 2 407 581, Sept. 10, 1946.

A highly water-resistant binder that is inexpensive and easily applied, for bonding asbestos fiber sheets consists essentially of oxalic acid solution. TTD:12-46.

METHYL CELLULOSE SIZE. Albert T. Maasberg (to Dow Chemical Co.). USP 2 408 326, Sept. 24, 1946.

An alkali-soluble methyl cellulose, useful as a textile size and as an ingredient of textile printing compositions, is prepared by an improved process of methylating alkali cellulose. The methyl cellulose obtained is easily dissolved, simply by stirring in aqueous NaOH (3-4%). TTD:12-46.

FULLING MILL. Harold H. Belcher (to Rodney Hunt Machine Co.). USP 2 409 011, Oct. 8, 1946.

An improved cloth fulling mill has a pneumatic pressure loaded clapper for the packing boxes such that pressure may be easily and conveniently applied as desired. TTD:12-46.

REGENERATED CELLULOSE TREATMENT. Aktiengesellschaft Cilander. Brit. P. 577 233. *Textile Mfr. 72,* 493 (Sept. 1946).

A transparent effect is produced on fabrics containing regenerated cellulose staple fibers by treatment with an alkaline and acid swelling agents at about 15°C. TTD:12-46.

DELUSTERING RAYON. R. G. Bartlett, A. H. Lord & C. A. Norris (to Imperial Chemical Industries, Ltd.). Brit. P. 577 313. *Textile Mfr. 72,* 493 (Sept. 1946).

A dull finish, or delustered effect, is imparted to rayon fabrics by impregnating them with an aqueous solution of a cationic surface-active agent, squeezing, immersing in an aqueous dispersion of a polymethyl methacrylate, polyvinyl chloride, or styrene, rinsing, and drying. TTD:12-46.

FINISHING TEXTILES. Eduard Brauchli. Swiss P. 244 322, Nov. 16, 1945.

Draw rod for the lever of stretching frames used for fabrics after finishing. TTD:12-46.

SIZING. Friedrich Huber. Swiss P. 244 819, Jan. 9, 1946.

An improved composition for sizing textile products. TTD:12-46.

FIBER PROCESSING. Tootal Broadhurst Lee Co. Ltd. Swiss P. 244 849, Mar. 17, 1944.

A method for processing fibrous materials, and a fiber product made by this method. TTD:12-46.

COLOR — VII

COLOR as applied to textiles. Alex J. Bennett. *Textile J. Australia 21,* 76-7, 138, 204, 346-7, 420-1 (Apr., May, June, Aug., Sept., 1946).

The interrelationship of weave and color in cloth planning and designing is emphasized. Different color and weave designs are discussed with the aid of diagrams. Coloring by interchange of weave is described as it is utilized in figured fabrics. Spot weaves and weft reversible cloths are discussed and diagrammed. TTD:12-46.

DYEING AND PRINTING. Notes on oxidation in dyeing and printing. Technicus. *Textile Mfr. 72,* 485-6 (Sept. 1946).

Various oxidation methods using vat dyes, solubilized vat dyes, and aniline black, are briefly discussed. TTD:12-46.

Bleaching — VII 1

OZONE BLEACHING. Ozone methods of bleaching yarns or fabrics. E. Howlett. *Textile Mfr. 72,* 412-14 (Aug. 1946).

The bleaching properties of ozone (having the highest energy potential of all oxidizing agents used in bleaching vegetable fibers, i. e., 30.7 calories) and various ways of forming it (by electrolysis, evaporation of sea water, ultraviolet rays, etc.), are discussed; and plant requirements for its production are outlined. TTD:12-46.

BLEACHING ACETATE. Mathieson Alkali Wks. Brit. P. 576 909-10. *Textile Mfr. 72,* 492 (Sept. 1946).

Cellulose acetate is bleached in the presence of an aldehyde or a persulfate with a solution of an alkali chlorite or alkaline earth metal. In an example cellulose acetate fabric was immersed 2 hours at 40°C in 200 cc of a solution containing 0.4 g of sodium persulfate and 0.4 g of available Cl as $NaClO_2$, pH about 8. TTD:12-46.

Dyeing — VII 2

DIP DYEING OF PLASTICS. Louis F. Koberlein, Interchemical Corp. *Interchem. Rev. 5,* 74-7 (Autumn, 1946).

While at one time based on techniques for dyeing synthetic textiles, the dyeing of plastics is being furthered independently now. Dip-dyeing depends on the use of solvents to soften the surface of the plastic material. Crazing of the plastic is prevented by water or another buffer. Dip dyeing requires careful consideration of the chemical and physical properties of the plastic to be dyed, although most of the dip dyes are designed to dye as many different types of plastics as possible. TTD:12-46.

FABRICS AND DYES. Textile fabrics and applicable dyes. Anon. *Dyestuffs 39,* 84-91 (Summer-Autumn, 1946).

A brief general review. TTD:12-46.

DYED FABRIC TREATMENT. Mathieson Alkali Wks. Brit. P. 576 296. *Textile Mfr. 72,* 444 (Aug. 1946).

In aftertreating vat and sulfur dyed fabric, dye oxidation is effected, without the use of Cr compounds and of acid, by treatment with $NaClO_2$ with or without an acid such as acetic. TTD:12-46.

DYEING ACETATE. Brit. Celanese, Ltd. Brit. P. 576 927. *Textile Mfr. 72,* 492 (Sept. 1946).

Cellulose acetate is dyed with a direct dye by impregnation with an aqueous solution containing at least 60 wt.% ethyl alcohol and 1-8% of an aliphatic monocarboxylic acid. TTD:12-46.

DYEING CELLULOSE ACETATE. Henry C. Olpin, Edmund Stanley & Christopher S. Argyle (to Henry Dreyfus). Can. P. 437 383-4, Oct. 8, 1946.

Cellulose acetate fibers are colored with an azo dye having a monovalent aliphatic radical free from sulfonic and carboxylic groups and containing at least 8 C atoms. Another azo dye of this type has 16-18 C atoms in an aliphatic monocarboxylic acid. TTD:12-46.

Printing — VII 3

CZECH TEXTILE PRINTING MACHINERY. Anon. *Textile Mfr. 72,* 476, 478 (Sept. 1946).

Color mixing, vacuum filtering, and semiautomatic mill engraving machines (Franz Zimmer's Erben) are among textile machinery briefly described and illustrated. TTD:12-46.

FILM PRINTING. Modern steaming equipment for film printing. Arnold Haller. *Textil-Rundschau 1,* 138-40 (Nov. 1946).

Steaming equipment which utilizes a drying tower 30-40 ft. high for steaming and drying fabrics dyed by film printing is so arranged that the rolls do not cause spotty effects on the printed goods. The apparatus is described and illustrated. For certain dyes acid may be injected into the steam; but in that case the equipment should be made of rustless steel. TTD:12-46.

PIGMENT COLORS. Applying pigment colors to textiles. Winn W. Chase. *Interchem. Rev. 5,* 47-54 (Summer, 1946).

Progress during the past decade is reviewed on the basis of 4 systems for applying pigment colors to textiles: (1) aqueous dispersion, (2) solvent dispersion, (3) water-in-oil emulsion, and (4) oil-in-water emulsion. It is noted that while in the past one system only was generally used by an individual printer or dyer, 2 or more systems are now commonly being used. TTD:12-46.

BLANKET PRINTING. Wm. C. Ross & Stephen B. Neiley (to Dewey & Almy Chemical Co.). Can. P. 437 322, Oct. 8, 1946.

A blanket is printed by an improved process whereby the color is prevented from working through the goods. TTD:12-46.

DRYING PRINTED FABRIC. Harry Fleisher & Geo. H. Tillett (to Montreal Cottons, Ltd. through Geo. H. Tillett & Roto-Matic Screen Printer, Ltd.). Can. P. 437 339, Oct. 8, 1946.

A fabric is printed and dried on an improved apparatus that carries the fabric on an endless belt through a spiral drying space which is heated by a fan-driven stream of air. TTD:12-46.

Color measurement — VII 4

COLOR on machines in textile industry. W. Schweisheimer. *Rayon Textile Monthly 27,* 621-2 (Nov. 1946).

The beneficial results to workers from functional painting of machines are stressed: better illumination, less eye strain, fewer accidents, fewer complaints, and lower cost.

HAM TTD:12-46.

LIMITATION OF COLOR. W. D. Wright, Imperial College of Science and Technology (London). *Rayon Textile Monthly 27,* 558-9, 612-13 (Oct., Nov. 1946).

The merits of 2 dyes (green) at various concentrations are compared by the same method as that of a previous article (see TTD:8-46, p. 387), making use of square-topped reflection curves in the analysis. TTD:12-46.

Color defects — VII 5

COLOR DEFECTS. Selvedge defects and off-color effects in wool and mixed fabrics. P. Stäubli, Pfenninger & Cie. *Textil-Rundschau 1,* 131-6 (Nov. 1946).

Selvedge defects in piece-dyed goods appear as color differences between the right or left selvedge and the middle of the piece, or between the 2 selvedges. There are several possible causes and the true cause is often difficult to trace. One of the chief causes is curling of the selvedge. In mild cases the use of a leveling agent may lead to even dyeing. Off-color effects may also result from improper washing after fulling, or even on goods which have not been fulled. Storage of goods with some parts shielded and other parts exposed to light is another cause of color variations. Several examples in wool, cotton and rayon are described and illustrated. TTD:12-46.

OFF-SHADES in textile printing. Technicus. *Textile Recorder 64,* No. 761, 50-1, No. 762, 48-9, 60, No. 764, 46-8 (Aug., Sept., Nov., 1946).

Matching up colorings from shade cards or from previous printings and maintaining levelness of shade are stressed. Causes of off-shade are considered under 5 heads: preparation of paste, printing, aging or steaming, development and oxidation, and washing off. TTD:12-46.

PROOFING VIII

NEW FABRIC STABILIZATION PROCESS. Anon. *Rayon Textile Monthly 27,* 595 (Nov. 1946).

A brief note on Alrose's Definized process. TTD:12-46.

MILDEWPROOFING. David M. Musser (to Pacific Mills). USP 2 403 945, July 16, 1946.

A mildewproofing treatment for fabrics consists in treating the cloth with certain acyl compounds of orthohydroxy diphenyl. TTD:12-46.

RESIN TREATED RAYON. Washable rayon marquisette. Anon. *Rohm & Haas Reptr. 4,* No. 5, 1-3 (Dec. 1946).

Improved dimensional stability is imparted to filmy curtain fabrics such as sheer rayon marquisette by treatment with urea-formaldehyde resins (such as Rohm & Haas's Rhonite 609, particularly). TTD:12-46.

FIRE-RESISTANT COATING. Martin Leatherman. USP 2 407 668, Sept. 17, 1946.

A fabric of cotton, rayon, wool, silk, etc., is rendered flame-resistant and also water-repellent by a composition containing acrylate or methacrylate ester polymers, polyvinyl chloride, $ZnCO_3$, a plasticizer such as tricresyl phosphate, and a pigment. TTD:12-46.

IMPROVING PROPERTIES OF ALGINATES. S. E. Lawton & F. C. Wood (to Tootal Broadhurst Lee Co., Ltd.). Brit. P. 576 101. *Textile Mfr. 72,* 443 (Aug. 1946).

The swelling of alginate fibers on wetting is reduced and the fibers stabilized by impregnation with a synthetic resin solution, particularly urea-formaldehyde. TTD:12-46.

WATER-REPELLENT NYLON. C. Dunbar, G. Landells, C. A. Norris & R. J. Smith (to Imperial Chemical Industries, Ltd.). Brit. P. 577 433. *Textile Mfr. 72,* 494 (Sept. 1946).

A water-repellent finish is imparted to nylon fabrics by applying a water-repellent agent (e. g., a wax or a long-chain quarternary ammonium compound) and hot calendering the material (either before or after the treatment). TTD:12-46.

WATER REPELLENT. H. J. Tadema (to N. V. de Bataafsche Petroleum Mij.). Swed. P. 117 178, Mar. 28, 1944.

A compound for imparting water repellency to paper pulp, textile fibers, fabrics, artificial leather and the like by application either during or after manufacture of the fibrous product, contains 5-30 parts by wt. of a saponifiable natural resin such as rosin, 70-95 parts by wt. of a hydrocarbon such as a mineral oil fraction, and aqueous 5-30% alkali such as KOH in

quantity ranging from 0.5 to 2 times the amount required for complete saponification of the rosin. TTD:12-46.

WATERPROOFING. J. R. Geigy A.-G. Swiss P. 244 021, Dec. 5, 1944.

Process for making an agent for imparting water repellency to fabrics. TTD:12-46.

TESTING AND ANALYSIS IX

MODERN TESTING LABORATORY. Walter S. Sondhelm. *Textile Recorder 64,* No. 762, 38-40, 42 (Sept. 1946).

Instruments needed for the visual examination of fabrics and for the determination of their weight, structure, strength, and extension are itemized and briefly evaluated. TTD:12-46.

Physical properties IX 1

ABRASION TESTER. Edge abrasion, a new method of abrasion testing. K. Fogler. *Textil-Rundschau 1,* 156-7 (Nov. 1946).

A new tester utilizing the principle of edge abrasion has greatly simplified abrasion testing and increased the reliability by reducing the number of variables to 3. The specimen is folded, using a gage for correct fold height, and clamped in the tester. The abrasion member is a flat brush with short nylon bristles. Under standard atmospheric conditions the only variables are the height of the fold, the load on the brush and the rate at which the brush crosses the fold. The most troublesome variable eliminated by this tester is the tension on the fabric. In abrading the surface of a flat specimen it is practically impossible to maintain constant tension on the sample, and tension is a highly influential factor in abrasion. On the new tester the fold may be warpwise, fillingwise or diagonal. The tensile strength of the fabric at the line of abrasion is measured at intervals, and a curve is plotted with tensile strength as a function of number of strokes. For fabric evaluation from abrasion tests it is better to calculate the number of strokes at which the fabric is 75% abraded to failure than to attempt a precise determination of the failure point. Good results have also been obtained by calculating the number of strokes at 50% abrasion to failure. TTD:12-46.

DRYING AND STRENGTH. Influence of conditioning and drying on the strength of paper and pulp. E. Fridöri, Verband Schweizerischer Papier- und Papierstoff-Fabrikanten. *Textil-Rundschau 1,* 105-12 (Oct. 1946).

In the exchange of moisture between paper fibers and the surrounding atmosphere equilibrium is reached more rapidly in moisture absorption than in giving off moisture to the air. Breaking strength tends to be higher at the adsorption equilibrium than at the desorption equilibrium. The reverse is true of elonga-

tion at break and of impact strength, which is approximately proportional to the product of breaking strength and elongation at break. The influence on elongation is considerably greater than the influence on breaking strength. Hardening of cellulose by high temperature drying is noticeable both in decreased moisture absorption capacity and in decreased breaking strength after drying at 90°C as compared with the same product dried at 30°C. TTD:12-46.

FLUORESCENCE. Ultraviolet light and fluorescence in textile industry. M. Trioen. *Textielwezen 2,* 595-9 (Nov. 1946).

Ultraviolet light can be used in testing the light fastness of dyes, as is illustrated by a table of properties of 4 dyes on cotton, cuprammonium rayon, nitrosilk, viscose rayon and natural silk. Other tests using ultraviolet light include dye identification, fiber identification, and detection of defects in fabrics. TTD:12-46.

PROPERTIES OF TIRE CORD. Hysteresis and related elastic properties of tire cords. Helmut Wakeham & Edith Honold, Southern Regional Research Laboratory. *J. Applied Physics 17,* 698-711 (Aug. 1946).

From fatique tests on 7 typical tire cords (1 nylon, 2 rayon, and 4 cotton cords) a method of evaluating mechanical hysteresis, elastic modulus, elongation, and growth rate of a yarn or cord subjected to cyclic loads is described. Moisture content is concluded to be the dominant factor influencing the elastic properties of tire cords, and elastic hysteresis of the cord fabric seems to contribute appreciably to the high temperatures observed in tires in service. TTD:12-46.

SHRINKAGE OF RAYON. Shrinkage and dimensional stability in rayon fabrics. J. Guilfoyle Williams. *J. Textile Inst. 37,* P116-19 (June, 1946).

The undesirable effect on the consumer of excessive shrinkage in rayon fabrics upon washing is noted as calling for additional study in order to minimize pronounced dimensional changes, largely attributable to failure to allow the fabric to relax completely and assume natural dimensions during finishing. TTD:12-46.

TESTING. Test methods and standardization. A Engeler. *Textil-Rundschau 1,* 78-80 (Sept. 1946).

The trend in textile testing is away from dynamic tests, which destroy the sample, toward static tests which leave the sample intact. Dynamic tests, however, are nearer to the conditions which cause failure in use. More attention is being given to the conditions existing during tests, in the interests of detecting and eliminating sources of error. Swiss textile testing and standardization are in charge of SVMT (Schweizerischer Verband für Materialprüfungen der Technik) Committee 25. TTD:12-46.

TEXTILE TESTING. Committee 25 (Textile Industry of the Schweizerischer Verband für die Materialprüfungen der Technik (SVMT). *Textil-Rundschau 1,* 113 (Oct. 1946).

Tentative standards of SVMT Committee 25 will be published in successive issues of "Textil-Rundschau" and will be open to discussion and criticism for 1 month after the date of publication. The letter code for these standards is: A, Procedures and test methods; B, Raw materials, fibers, products of prespinning operations; C, Yarn, thread, twine, rope; D, Woven and knit fabrics, braid, felt; E, Finished products. The first tentative standard to be published in this way is C11 on characterizing yarns by fiber, fineness and twist. TTD:12-46.

DIRECTIONS FOR CALCULATING YARN NUMBER AND TITER. Tentative standards C12, SVMT Committee 25, Schweizerischer Verband für die Materialprüfungen der Technik. St. Gallen, Switzerland, 1946; 7 pp.

Printed in full in *Textil-Rundschau 1,* 141-7 (Nov. 1946). TTD:12-46.

DIRECTIONS FOR CHARACTERIZING YARN AND THREAD ACCORDING TO FIBER, FINENESS AND TWIST. Tentative standard C11, SVMT Committee 25, Schweizerischer Verband für die Materialprüfungen der Technik. St. Gallen, Switzerland, 1946; 4 pp.

Printed in full in *Textil-Rundschau 1,* 114-7 (Oct. 1946). TTD:12-46.

Chemical analysis — IX 2

ANIMAL HAIR. Distinguishing horse hair from cow tail hair. A. Engeler & F. Weining, Eidgenössische Materialprüfungs- und Versuchsanstalt. *Textil-Rundschau 1,* 136-8 (Nov. 1946).

Cow tail hair is sometimes difficult to distinguish from horse hair. If both types of hair are soaked 30 minutes in 10% NaOH at 20°C, rinsed twice with water, once with 2% boric acid and finally again with water, and then rolled between 2 glass slides, horse hair will disintegrate while cow tail hair will remain intact. If the hairs are dyed they should be soaked 45 minutes instead of 30 minutes. This test is easy to make, and in the case of blends a close approximation of the percentage of each type of hair can be ascertained. TTD:12-46.

Specifications — IX 4

MATERIAL PURCHASE SPECIFICATIONS. S. B. Ashkinazy, Sperry Gyroscope Co., Inc. *ASTM Bull.* No. 143, 48-51 (Dec. 1946).

Purchase specifications are essential for procurement of materials and for maintenance of their uniformity and quality. Different groups of materials require different types of specifications. Nationally issued

specifications are of greater value than those set up by individual purchases from the standpoint of availability, uniformity, and low cost materials. Bibliography 27 references.
HAM TTD:12-46.

CLEANSING XI

LAUNDERING TREATMENT OF FABRICS. Herman Engler (to Paul Koletzko & C. Alfred Hands). USP 2 407 635, Sept. 17, 1946.

A fabric treatment to be applied during laundering, which improves the appearance and weaving quality, consists of impregnating the cloth with an alkaline (preferably sodium borate) solution of a vegetable gum and a penetrating agent (preferably glycerine and pectin). This preparation may be used either in the last rinsing water or in the starch solution in the approximate proportions of 1-120. TTD:12-46.

OM VASK AF TEKSTILER (WASHING TEXTILES). Herman Reimars. A/S Vestheim & Elektrisk Vask - Thor's Kemiske Fabrikker A/S, Oslo, 1946; 46 pp.

Reviewed in *Norsk Tekstiltidende 27,* 208 (Nov. 1946). TTD:12-46.

HAZARDS XII

FIRE AND ACCIDENT HAZARDS can and do affect profits. Henry Miedendorp. *Rayon Textile Monthly 27,* 615-17 (Nov. 1946).

Common hazards are generally discussed and methods of dealing with them suggested. TTD:12-46.

PROTECTION FROM DYES. C. E. H. Brown & E. G. Cockbain (to Imperial Chemical Industries, Ltd.). Brit. P. 576 100. *Textile Mfr. 72,* 443 (Aug. 1946).

Dye powders, other than hygroscopic salts, capable of causing dermatitis may be coated with an oily or waxy substance (such as aliphatic carboxylic acids) in a proportion of no more than 1-10 by weight.
TTD:12-46.

TEXTILE MILLS XIII

Mill machinery XIII 2

REDUCING MACHINERY VIBRATION. Ernest W. Fair. *Rayon Textile Monthly 27,* 617 (Nov. 1946).

Some common causes of vibration are indicated (unbalance is the most common cause in rotating machinery), and methods of overcoming them discussed.
TTD:12-46.

Mill power XIII 3

ELECTRIC POWER. Installation of electric power plant. Anon. *Textile Mfr. 72,* 472-4 (Sept. 1946).

Types of motors and general precautions against fire hazards (by overload protection, location of motor control gear, wiring installation, etc.), are discussed.
TTD:12-46.

FREQUENCY CHANGING for operation of high-speed induction motors. H. Sparke. *Textile Mfr. 72,* 417-18 (Aug. 1946).

Stepping up frequency to permit running induction motors at considerably higher-than-rated speeds (as is necessary with rayon spinning motors) is discussed with the aid of 2 examples. TTD:12-46.

POWER TRANSMISSION by V-belt drives in textile mills. T. Hall. *J. Textile Inst. 37,* P 109-16 (June, 1946).

The advantages of V-belt driving over flat belt are discussed with respect to the various types of textile machinery (cards, combers, mules, winders, warpers, looms, etc.), and include: large speed ratios, clean operation, freedom from noise and vibration, reduction of bearing wear from low running tensions, and cushioning of motor and machine against load fluctuation.
TTD:12-46.

V-BELT DRIVES. Anon. *Textile Recorder 64,* No. 762, 63, 65 (Sept. 1946).

A brief description and review of the advantages of V-belts. TTD:12-46.

Mill materials XIII 4

CONSTRUCTION MATERIALS—Chem. Eng. 53, No. 11, 102-50 (Nov. 1946).

Tables of corrosive-resistant materials of construction, and recommendations on materials for specific corrosion problems.
LCL TTD:12-46.

Mill lighting XIII 5

FLUORESCENT LIGHTING in textile industry. Anon. *Textile Mfr. 72,* 409, 411 (Aug. 1946).

Some of the advantages of fluorescent lighting are briefly considered, particularly in regard to the effect on the comfort of workers. TTD:12-46.

Atmospheric control XIII 6

AIR CONDITIONING in textile mills. E. Howlett. *Textile Mfr. 72,* 468-9, 471, 474 (Sept. 1946).

A system of air conditioning for cotton spinning and doubling rooms and weaving sheds, a complex problem because of the variety of conditions encountered, is briefly discussed. TTD:12-46.

Water supply — XIII 8

SOFTENING. Experiments with base exchange compositions. Ed. Jaag, Schnyder & Cie. *Textil-Rundschau 1,* 99-105 (Oct. 1946).

Apparatus for testing the water-softening capacity of base exchange compositions is described and illustrated. Test results are in good agreement with practical observations, and the apparatus has the advantage that all operations are carried out in glass so that the entire process is under observation. Manufacturers usually understate the water-softening capacity of their products by 20-30% as a safety factor against careless use or incomplete reaction. In the brine process of regenerating base exchange compositions, the optimum quantity of NaCl is about 3-4 times the theoretical quantity. Of all the tested reagents the natural zeolites had the lowest water-softening capacity, while the synthetic resin reagents and the best of the synthetic zeolites showed the highest capacity. The active carbon type of water-softening agent is between these 2 extremes. TTD:12-46.

BASIC SCIENCES — XIV

MOLECULAR COORDINATION IN CELLULOSE. IV — Native cellulose; V — Regenerated cellulose. F. T. Pierce. *Trans. Faraday Soc. 42,* 545-71 (Aug. 1946).

Despite extensive x-ray studies of cellulose there is no satisfactory solution as yet for the determination of the space group. Successive approximations to the crystalline structure of cellulose (that of Meyer and Misch being the latest and nearest) do not entirely agree with the evidence. While the location of the central chain of the cell may be that chosen by Meyer and Misch, another is in equally good accord with the x-ray evidence and better fits the data on the regenerated form. The conversion of one form of cellulose into the other may be explained by the molecular coordination proposed which seems to be of lower free energy than that of native cellulose, as is indicated by the phenomena of dimorphism. TTD:12-46.

TEXTILE RESEARCH — XV

QUARTERMASTER RESEARCH PROGRAM offers attractive careers to scientists. Julian S. Jacobs, Textile Research Inst. *Rayon Textile Monthly 27,* 533-6 591-5 (Oct., Nov. 1946).

The Quartermaster Corps' wartime accomplishments in research are briefly surveyed and its peacetime program outlined; and included in this program is a thorough and comprehensive training of students for research.

HAM TTD:12-46.

TEXTILE DEVELOPMENTS. Textile machines and processes in postwar America. Julian F. Smith, Inst. of Textile Technology. *Bull. Am. Soc. Swedish Engs. 41,* No. 1, 18-19, 41 (Winter, 1946-47).

A general survey. TTD:12-46.

STUDIER I SVENSKA TEXTILA INDUSTRIERS STRUKTUR (STUDIES IN THE STRUCTURE OF THE SWEDISH TEXTILE INDUSTRIES). Folke Kristensson. Industriens Utredningsinstitut, Stockholm, Sweden; 1946; 503 pp. TTD:12-46.